

1 54. The microencapsulation process of claim 51, wherein the mixer comprises a heated jacket,
2 and wherein the heated jacket heats the mixer sufficiently to melt the oil upon addition of the oil to the mixer.

1 55. The microencapsulation process of claim 51 wherein the core material comprises ace-
2 inhibitors; anti-anginal drugs; anti-arrhythmias; anti-asthmatics; anti-cholesterolemics; anti-convulsants; anti-
3 depressants; anti-diarrhea preparations; anti-histamines; anti-hypertensive drugs; anti-infectives; anti-
4 inflammatory agents; anti-lipid agents; anti-manics; anti-nauseants; anti-stroke agents; anti-thyroid
5 preparations; anti-tumor drugs; anti-tussives; anti-uricemic drugs; anti-viral agents; acne drugs; alkaloids;
6 amino acid preparations; anabolic drugs; analgesics; anesthetics; angiogenesis inhibitors; antacids;
7 antiarthritics; antibiotics; anticoagulants; antiemetics; antiobesity drugs; antiparasitics; antipsychotics;
8 antipyretics; antispasmodics; antithrombotic drugs; anxiolytic agents; appetite stimulants; appetite
9 suppressants; beta blocking agents; bronchodilators; cardiovascular agents; cerebral dilators; chelating agents;
10 cholecystokinin antagonists; chemotherapeutic agents; cognition activators; contraceptives; coronary dilators;
11 cough suppressants; decongestants; deodorants; dermatological agents; diabetes agents; diuretics; emollients;
12 enzymes; erythropoietic drugs; expectorants; fertility agents; fungicides; gastro-intestinal agents; growth
13 regulators; hormone replacement agents; hyperglycemic agents; hypnotics; hypoglycemic agents; laxatives;
14 migraine treatments; mineral supplements; mucolytics; narcotics; neuroleptics; neuromuscular drugs; NSAIDS;
15 nutritional additives; peripheral vaso-dilators; polypeptides; prostaglandins; psychotropics; renin inhibitors;
16 respiratory stimulants; steroids; stimulants; sympatholytics; thyroid preparations; tranquilizers; uterine
17 relaxants; vaginal preparations; vaso-constrictors; vaso-dilators; vertigo agents; vitamins; wound healing
18 agents, botanical substances, fungicides, fertilizers, niacin, L-arginine, creatine monohydrate, L-carnitine,
19 aspirin, loratidine, lovastatin, vitamin C, garlic powder, polygonum cuspidatum root extract, astaxanthin,
20 tocotrienol or co-enzyme Q-10.

1 56. The microencapsulation process of claim 51 wherein the oil having a melting point above
2 about 110 Deg. F comprises a vegetable oil with a melting point between 120 degrees F and 200 degrees F.

1 57. The microencapsulation process of claim 51, wherein the oil having a melting point above
2 about 110 Deg. F comprises a hydrogenated soy oil with a melting point of about 160 degrees F.

1 58. The microencapsulation process of claim 51 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 50% by weight in the finished microencapsulated
3 particle.

1 59. The microencapsulation process of claim 51 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 20% by weight in the finished microencapsulated
3 particle.

1 60. The microencapsulation process of claim 51 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 10% by weight in the finished microencapsulated
3 particle.

1 61. The microencapsulation process of claim 51, wherein mixing the core material and the oil
2 further comprises mixing a sugar or a mineral with the core material and the oil.

1 62. The microencapsulation process of claim 61, wherein the sugar is present in the melt from 1-
2 30% by weight of finished microencapsulated particles.

1 63. The microencapsulation process of claim 61, wherein the sugar is selected from the following;
2 sucrose, dextrose, lactose, polydextrose, maltodextrin, and maltose.

1 64. The microencapsulation process of claim 61, wherein the mineral is present in the melt from
2 1-20% by weight of the finished microencapsulated particles.

1 65. A microencapsulation process comprising:
2 a) adding a core material, and an oil having a melting point above about 110 Deg. F., into a mixer;
3 b) simultaneously fluidizing and mixing the core material and the oil until microencapsulated particles
4 are formed that comprise the core material and the oil; and
5 c) discharging the microencapsulated particles.

1 66. The microencapsulation process of claim 65, wherein the fluidizing and mixing of the core
2 material and the oil are performed using a screw auger.

1 67. The microencapsulation process of claim 65, wherein discharging the microencapsulated
2 particles comprises cooling the microencapsulated particles.

1 68. The microencapsulation process of claim 65, wherein mixing the core material and the oil
2 comprises mixing at a mixer work input sufficient to melt the oil.

69. The microencapsulation process of claim 65, wherein the mixer comprises a heated jacket, and wherein the heated jacket heats the mixer sufficiently to melt the oil upon addition of the oil to the mixer.

70. The microencapsulation process of claim 65 wherein the core material comprises ace-
inhibitors; anti-anginal drugs; anti-arrhythmias; anti-asthmatics; anti-cholesterolemics; anti-convulsants; anti-
depressants; anti-diarrhea preparations; anti-histamines; anti-hypertensive drugs; anti-infectives; anti-
inflammatory agents; anti-lipid agents; anti-manics; anti-nauseants; anti-stroke agents; anti-thyroid
preparations; anti-tumor drugs; anti-tussives; anti-uricemic drugs; anti-viral agents; acne drugs; alkaloids;
amino acid preparations; anabolic drugs; analgesics; anesthetics; angiogenesis inhibitors; antacids;
antiarthritics; antibiotics; anticoagulants; antiemetics; antiobesity drugs; antiparasitics; antipsychotics;
antipyretics; antispasmodics; antithrombotic drugs; anxiolytic agents; appetite stimulants; appetite
suppressants; beta blocking agents; bronchodilators; cardiovascular agents; cerebral dilators; chelating agents;
cholecystokinin antagonists; chemotherapeutic agents; cognition activators; contraceptives; coronary dilators;
cough suppressants; decongestants; deodorants; dermatological agents; diabetes agents; diuretics; emollients;
enzymes; erythropoietic drugs; expectorants; fertility agents; fungicides; gastro-intestinal agents; growth
regulators; hormone replacement agents; hyperglycemic agents; hypnotics; hypoglycemic agents; laxatives;
migrain treatments; mineral supplements; mucolytics; narcotics; neuroleptics; neuromuscular drugs; NSAIDS;
nutritional additives; peripheral vaso-dilators; polypeptides; prostaglandins; psychotropics; renin inhibitors;
respiratory stimulants; steroids; stimulants; sympatholytics; thyroid preparations; tranquilizers; uterine
relaxants; vaginal preparations; vaso-constrictors; vaso-dilators; vertigo agents; vitamins; wound healing
agents, botanical substances, fungicides, fertilizers, niacin, L-arginine, creatine monohydrate, L-carnitine,
aspirin, loratidine, lovastatin, vitamin C, garlic powder, polygonum cuspidatum root extract, astaxanthin,
tocotrienol or co-enzyme Q-10.

71. The microencapsulation process of claim 65 wherein the oil having a melting point above about 110 Deg. F comprises a vegetable oil with a melting point between 120 degrees F and 200 degrees F.

72. The microencapsulation process of claim 65, wherein the oil having a melting point above about 110 Deg. F comprises a hydrogenated soy oil with a melting point of about 160 degrees F.

73. The microencapsulation process of claim 65 wherein the oil having a melting point above about 110 Deg. F is present in an amount of about 3% to 50% by weight in the finished microencapsulated particle.

1 74. The microencapsulation process of claim 65 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 20% by weight in the finished microencapsulated
3 particle.

1 75. The microencapsulation process of claim 65 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 10% by weight in the finished microencapsulated
3 particle.

1 76. The microencapsulation process of claim 65, wherein mixing the core material and the oil
2 further comprises mixing a sugar or a mineral with the core material and the oil.

1 77. The microencapsulation process of claim 76, wherein the sugar is present in the melt from 1-
2 30% by weight of finished microencapsulated particles.

1 78. The microencapsulation process of claim 76, wherein the sugar is selected from the following;
2 sucrose, dextrose, lactose, polydextrose, maltodextrin, and maltose.

1 79. The microencapsulation process of claim 76, wherein the mineral is present in the melt from
2 1-20% by weight of the finished microencapsulated particles.

80. A microencapsulation process comprising:

- a) adding a core material, and an oil having a melting point above about 110 Deg. F., into a mixer;
- b) mixing the core material and the oil, at a mixer work input ranging from 600 RPM to 2000 RPM,
- until microencapsulated particles are formed that comprise the core material and the oil; and
- c) discharging the microencapsulated particles.

1 81. The microencapsulation process of claim 80, wherein discharging the microencapsulated
2 particles comprises cooling the microencapsulated particles.

1 82. The microencapsulation process of claim 80, wherein mixing the core material and the oil
2 comprises mixing at a mixer work input sufficient to melt the oil.

1 83. The microencapsulation process of claim 80, wherein the mixer comprises a heated jacket,
2 and wherein the heated jacket heats the mixer sufficiently to melt the oil upon addition of the oil to the mixer.

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84. The microencapsulation process of claim 80 wherein the core material comprises ace-
inhibitors; anti-anginal drugs; anti-arrhythmias; anti-asthmatics; anti-cholesterolemics; anti-convulsants; anti-
depressants; anti-diarrhea preparations; anti-histamines; anti-hypertensive drugs; anti-infectives; anti-
inflammatory agents; anti-lipid agents; anti-manics; anti-nauseants; anti-stroke agents; anti-thyroid
preparations; anti-tumor drugs; anti-tussives; anti-uricemic drugs; anti-viral agents; acne drugs; alkaloids;
amino acid preparations; anabolic drugs; analgesics; anesthetics; angiogenesis inhibitors; antacids;
antiarthritics; antibiotics; anticoagulants; antiemetics; antiobesity drugs; antiparasitics; antipsychotics;
antipyretics; antispasmodics; antithrombotic drugs; anxiolytic agents; appetite stimulants; appetite
suppressants; beta blocking agents; bronchodilators; cardiovascular agents; cerebral dilators; chelating agents;
cholecystokinin antagonists; chemotherapeutic agents; cognition activators; contraceptives; coronary dilators;
cough suppressants; decongestants; deodorants; dermatological agents; diabetes agents; diuretics; emollients;
enzymes; erythropoietic drugs; expectorants; fertility agents; fungicides; gastro-intestinal agents; growth
regulators; hormone replacement agents; hyperglycemic agents; hypnotics; hypoglycemic agents; laxatives;
migrain treatments; mineral supplements; mucolytics; narcotics; neuroleptics; neuromuscular drugs; NSAIDS;
nutritional additives; peripheral vaso-dilators; polypeptides; prostaglandins; psychotropics; renin inhibitors;
respiratory stimulants; steroids; stimulants; sympatholytics; thyroid preparations; tranquilizers; uterine
relaxants; vaginal preparations; vaso-constrictors; vaso-dilators; vertigo agents; vitamins; wound healing
agents, botanical substances, fungicides, fertilizers, niacin, L-arginine, creatine monohydrate, L-carnitine,
aspirin, loratidine, lovastatin, vitamin C, garlic powder, polygonum cuspidatum root extract, astaxanthin,
tocotrienol or co-enzyme Q-10.

85. The microencapsulation process of claim 80 wherein the oil having a melting point above
about 110 Deg. F comprises a vegetable oil with a melting point between 120 degrees F and 200 degrees F.

86. The microencapsulation process of claim 80, wherein the oil having a melting point above
about 110 Deg. F comprises a hydrogenated soy oil with a melting point of about 160 degrees F.

87. The microencapsulation process of claim 80 wherein the oil having a melting point above
about 110 Deg. F is present in an amount of about 3% to 50% by weight in the finished microencapsulated
particle.

1 88. The microencapsulation process of claim 80 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 20% by weight in the finished microencapsulated
3 particle.

1 89. The microencapsulation process of claim 80 wherein the oil having a melting point above
2 about 110 Deg. F is present in an amount of about 3% to 10% by weight in the finished microencapsulated
3 particle.

1 90. The microencapsulation process of claim 80, wherein mixing the core material and the oil
2 further comprises mixing a sugar or a mineral with the core material and the oil.

1 91. The microencapsulation process of claim 90, wherein the sugar is present in the melt from 1-
2 30% by weight of finished microencapsulated particles.

1 92. The microencapsulation process of claim 90, wherein the sugar is selected from the following;
2 sucrose, dextrose, lactose, polydextrose, maltodextrin, and maltose.

1 93. The microencapsulation process of claim 90, wherein the mineral is present in the melt from
2 1-20% by weight of the finished microencapsulated particles.

1 94. A pharmaceutical composition comprising a microencapsulated core material, wherein the
2 microencapsulated core material is microencapsulated by a formulation that comprises an animal or vegetable
3 oil with a melting point above about 110 Deg. F. and a maximum iodine value of 5.0.

1 95. The pharmaceutical composition of claim 94, wherein the pharmaceutical composition is a
2 sustained-release pharmaceutical composition.

1 96. The pharmaceutical composition of claim 94, wherein the core material comprises ace-
2 inhibitors; anti-anginal drugs; anti-arrhythmias; anti-asthmatics; anti-cholesterolemics; anti-convulsants; anti-
3 depressants; anti-diarrhea preparations; anti-histamines; anti-hypertensive drugs; anti-infectives; anti-
4 inflammatory agents; anti-lipid agents; anti-manics; anti-nauseants; anti-stroke agents; anti-thyroid
5 preparations; anti-tumor drugs; anti-tussives; anti-uricemic drugs; anti-viral agents; acne drugs; alkaloids;
6 amino acid preparations; anabolic drugs; analgesics; anesthetics; angiogenesis inhibitors; antacids;
7 antiarthritics; antibiotics; anticoagulants; antiemetics; antiobesity drugs; antiparasitics; antipsychotics;

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8 antipyretics; antispasmodics; antithrombotic drugs; anxiolytic agents; appetite stimulants; appetite
 9 suppressants; beta blocking agents; bronchodilators; cardiovascular agents; cerebral dilators; chelating agents;
 10 cholecystokinin antagonists; chemotherapeutic agents; cognition activators; contraceptives; coronary dilators;
 11 cough suppressants; decongestants; deodorants; dermatological agents; diabetes agents; diuretics; emollients;
 12 enzymes; erythropoietic drugs; expectorants; fertility agents; fungicides; gastro-intestinal agents; growth
 13 regulators; hormone replacement agents; hyperglycemic agents; hypnotics; hypoglycemic agents; laxatives;
 14 migraine treatments; mineral supplements; mucolytics; narcotics; neuroleptics; neuromuscular drugs; NSAIDS;
 15 nutritional additives; peripheral vaso-dilators; polypeptides; prostaglandins; psychotropics; renin inhibitors;
 16 respiratory stimulants; steroids; stimulants; sympatholytics; thyroid preparations; tranquilizers; uterine
 17 relaxants; vaginal preparations; vaso- constrictors; vaso-dilators; vertigo agents; vitamins; wound healing
 18 agents, botanical substances, fungicides, fertilizers, niacin, L-arginine, creatine monohydrate, L-carnitine,
 19 aspirin, loratidine, lovastatin, vitamin C, garlic powder, polygonum cuspidatum root extract, astaxanthin,
 20 tocotrienol or co-enzyme Q-10.

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97. The pharmaceutical composition of claim 94, wherein the oil having a melting point above
 about 110 Deg. F comprises a vegetable oil with a melting point between 120 degrees F and 200 degrees F.

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98. The pharmaceutical composition of claim 94, wherein the oil having a melting point above
 about 110 Deg. F comprises a hydrogenated soy oil with a melting point of about 160 degrees F.

99. The pharmaceutical composition of claim 94, wherein the oil having a melting point above
 about 110 Deg. F is present in an amount of about 3% to 50% by weight in the finished microencapsulated
 particle.

100. The pharmaceutical composition of claim 94, wherein the oil having a melting point above
 about 110 Deg. F is present in an amount of about 3% to 20% by weight in the finished microencapsulated
 particle.

101. The pharmaceutical composition of claim 94, wherein the oil having a melting point above
 about 110 Deg. F is present in an amount of about 3% to 10% by weight in the finished microencapsulated
 particle.

102. The pharmaceutical composition of claim 94, further comprising a sugar or a mineral.

1 103. The pharmaceutical composition of claim 102, wherein the sugar is present in the melt from
2 1-30% by weight of finished microencapsulated particles.

3
1 104. The pharmaceutical composition of claim 102, wherein the sugar is selected from the
2 following; sucrose, dextrose, lactose, polydextrose, maltodextrin, and maltose.

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1 105. The pharmaceutical composition of claim 102, wherein the mineral is present in the melt from
2 1-20% by weight of the finished microencapsulated particles.